

WoC 7.0 Proposal

Project-Codeforces Chrome Extension

About Me

Good Morning Reviewer Sir !

My name is Sandeep Kumar and I am in my first year at IIT(ISM) Dhanbad . I am currently pursuing a Bachelors in Technology degree in Computer Science with. I would like to put forward a proposal for creating a chrome extension which will help multiple users solving codeforces competitive programming problems in a virtual room in real time synchronisation.

Personal detail

Name-Sandeep Kumar

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Time Commitment

This is my new experience to open source and to make any project . So ,learning and contributing would be exciting.

👉 5-6 hour each day

So,overall 35-40 hours a week.Coding always comes up with its charming features and always teaches new exciting things about tech ,so maybe i would end up dedicating more hours for this project.I have no any pre commitment during this project.So i am ready to contribute at my best.

Why this Project?

I chose this project due to multiple reasons like It is going to teach me a lot of stuff specially **Firestore implementation** and a **special reason** is that few weeks ago ,I had participated in a coding contest organised by our department “Codesey” hosted on codeforces where in the final round there is 1 v 1 knockout locking round means there will be 1v1 contest and whoever solves a question ,he gets point and that question will be locked for another player(now another one would not get point of that question). This all was done manually on paper by our senior sir. I was having a thought that there should be something in tech that should manage all this stuff.And now I got this opportunity to build the same.It will be exciting for me.

Project Detail

Description

This Chrome extension is going to be very interactive and collaborative to the world of competitive programming.This will help multiple users at the same time to solve codeforces questions in a competitive environment like it will have a countdown timer.This will help to skill up competitive temperament in official contests hosted by codeforces.

Features

1. Virtual Rooms

- **Functionality:** Users can create or join virtual rooms directly from the extension's popup menu.
- **Implementation Details:**
 - A simple interface to create or join rooms.
 - Each room will have a unique id that can be shared with participants.
 - Multiple participants are allowed in the room who can simultaneously play.

2. “Challenge” Button

- **Functionality:**“Challenge” button to every problem page on Codeforces.
- **Implementation Details:**
 - Clicking the button will share the problem with all participants.

- Brief problem details will be visible in the extension popup for all room members.

3. Countdown Timer

- **Functionality:** A countdown timer will start on clicking the challenge button for all participants simultaneously.
- **Implementation Details:**
 - The timer will appear on the problem page.
 - The timer ensures a fair start for all participants in the room.

4. Notifications

- **Functionality:** Automatically notifies the room whenever any user solves the problem.
- **Implementation Details:**
 - Using Codeforces API to monitor submissions for each participant.
 - Notify participants about the first solver.

5. Challenge Completion Popup

- **Functionality:** Displays results at the end of the challenge.
- **Implementation Details:**
 - A results popup lists participants' completion status.
 - Includes options to exit the room or start a new challenge.

Extra Feature

Future scope includes

- Expanding the extension to support platforms such as LeetCode(<https://leetcode.com/>) and HackerRank (<http://tiny.cc/hackerank>),<https://cses.fi/problemset/>
- Performance overview
- providing First solution of all problems etc.

Technology stack

Frontend

- **HTML,CSS,JavaScript**(for designing popups and other UI's)

Backend

- **Firebase,Codeforces API**(for real time synchronisation and fetching submission details)

Tools and Platforms

- **Chrome Extensions API,GitHub**(for building extension and keep tracking of project)

Brief Implementation Details

The extension will be developed as a Chrome Extension using the **Chrome Extensions API**. It will utilize a combination of front-end technologies (HTML, CSS, JavaScript) and back-end services (Firebase) to activate the following:

Let a user wanna to use our extension so when user click on our extension a menu will appear to join a room or create a room like this(using HTML,CSS and Firebase for real time synchronisation)

```
+-----+
| Codeforces Challenge Rooms |
|-----|
| Create Room: [Room Name] [GO] |
|-----|
| Join Room: [Room Code] [GO] |
|-----|
| Active Room: |
| Participants: |
| - User1 |
| - User2 |
| Challenge: [Problem Link] |
+-----+
```

source chatgpt.

On clicking a create a room a id will be shown to share with your friend and on joining room gives you blank space to enter a room id then after joining the room there will be option to “challenge” on codeforce page with countdown like

```
[ Problem Title ]  
[ Challenge Friends Button ]  
[ Countdown Timer: 00:05:00 ]  
[ Problem Statement ... ]
```

source chatgpt.

The on clicking challenge button will broadcast the problem link to all participant in the room using firebase and countdown will start and extension will monitor submissions using the codeforces api ,if anyone solve problem then a pop message will shown like

```
+-----+  
| User1 solved the problem first!|  
| Challenge status: 1/3 solved.  |  
+-----+
```

source chatgpt.

And at the end after countdown end a pop result will be shown describing who solves what and first user to solve a particular problem. like

```
+-----+  
| Challenge Results                |  
|-----|  
| 1. User1 - 4m 32s                |  
| 2. User2 - 6m 12s                |  
| 3. User3 - Did not solve         |  
|-----|  
| [ Start New Challenge ] [Exit]  |  
+-----+
```

source chatgpt.

Week Wise Timeline

Week 1: Initial Setup

- Making pop up pages for extension.
- Setting up development mode for chrome extension.
- Integrating Codeforces API to get responses of submission.

Week 2: Main Features

- Creating the "Challenge" button on Codeforces problem pages.
- Building the countdown timer.

Week 3: Real-Time Features

- Adding real-time notifications on submissions.
- Integrating Firebase for participant updates.

Week 4: Testing and Deployment

- Conducting tests to ensure smooth functioning.
- Fixing bugs and optimizing performance.

Conclusion

With the end of the coding time we will end up with building an interactive,playful chrome extension that will take your competitive programming journey to a next level.This project is going to make codeforces problem solving very friendly learning.

You can track this project [here](#)